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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,319	08/26/2003	Toshio Masuda	520.34403C12	2030

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EXAMINER
ALEJANDRO MULERO, LUZ L

ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 03/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/647,319

Applicant(s)

MASUDA ET AL.

Examiner

Luz L. Alejandro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/14/05 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 16-19, 22-25, and 28-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Collins et al., U.S. Patent 6,024,826.

Collins et al. shows the invention as claimed including a plasma processing apparatus for processing a sample 156 placed on a sample stage 154 disposed inside a

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processing chamber using a plasma generated therein, comprising: a plate 152a facing said plasma which is disposed at an upper side with respect to said sample stage and opposing to a sample loading surface of said sample stage, wherein said plate is coupled to an electric power source 1214 which is substantially only one source of an electric field for generating the plasma applied from the upper side of said sample which is disposed inside of said processing chamber; a power source 170 for supplying a radio frequency power to said sample stage; and a dielectric ring member 152b disposed at least between a periphery of said plate and a side wall of said processing chamber and facing said plasma, wherein said dielectric ring member covers at least an outer edge surface of said plate and is contiguous with said side wall and is between said plate and said side wall; wherein a gas is introduced inside said processing chamber from the upper side of said sample (see inlets 164a, b, and d) and said processing chamber is evacuated by an evacuation system 160 which is disposed below said sample stage (see fig. 8b and its description).

With respect to claims 17, 23, and 28 note that the dielectric ring member forms at least a portion of a ceiling of said processing chamber between said plate and said sidewall.

Regarding claims 18, 24, and 29 note that a bias power 1214 is applied to said plate.

Concerning claims 19, 25, and 30 note that an inner diameter of said dielectric ring member is larger than a diameter of said sample.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 16-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shamouilian et al., U.S. Patent 6,095,084 in view of Collins et al., U.S. Patent 6,024,826.

Shamouilian et al. shows the invention as claimed including a plasma processing apparatus for processing a sample placed on a sample stage 155 disposed inside a processing chamber using a plasma generated therein, comprising: a plate 145 facing said plasma which is disposed at an upper side with respect to said sample stage and

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opposing to a sample loading surface of said sample stage, wherein said plate is coupled to an electric power source 180 which is substantially only one source of an electric field for generating the plasma applied from the upper side of said sample which is disposed inside of said processing chamber; a power source 180 for supplying a radio frequency power to said sample stage; and a dielectric ring member (see outermost portion 135) disposed at least between a periphery of said plate and a side wall of said processing chamber and facing said plasma and nearer to the sample than the plate, wherein said dielectric ring member covers at least an outer edge surface of said plate and is contiguous with said side wall and is between said plate and said side wall and said processing chamber is evacuated by an evacuation system 125 which is disposed below said sample stage (see fig. 2 and its description).

Shamouilian et al. does not expressly disclose wherein a gas is introduced inside said processing chamber from the upper side of said sample. Collins et al. discloses a plasma apparatus in which gas is introduced inside said processing chamber from a variety of places including from the upper side of said sample (see fig. 8B and its description). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Shamouilian et al. so as to allow gas to be introduced into the processing chamber from the upper side of said sample because this is shown by Collins et al. to be an effective and efficient way to conduct plasma processing on the workpiece within the plasma apparatus.

With respect to claims 17, 23, and 28 note that the dielectric ring member in Shamouilian et al. forms at least a portion of a ceiling of said processing chamber between said plate and said sidewall.

Regarding claims 18, 24, and 29 note that a bias power is applied to said plate.

Concerning claims 19, 25, and 30 note that an inner diameter of said dielectric ring member is larger than a diameter of said sample.

Claims 20-21, 26-27, and 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collins et al., U.S. Patent 6,024,826 in view of Shamouilian et al., U.S. Patent 6,095,084.

Collins et al. is applied as above but does not expressly disclose where the surface of the dielectric ring member which faces the plasma is nearer to the sample than a surface of said plate which faces the plasma. Shamouilian et al. discloses a plasma apparatus in which the surface of a dielectric ring member 135 which faces the plasma is nearer to the sample than a surface of a plate 145 which faces the plasma (see fig. 2 and its description). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Collins et al. so as to include the ring member of Shamouilian et al. because such a structure will provide stability to the plate structure.

Response to Arguments

Applicant's arguments with respect to claims 16-34 have been considered but are moot in view of the new ground(s) of rejection. Furthermore, note that in Collins et al.,

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U.S. Patent 6,024,826 embodiments where reference number 150 and 152 are different materials are also contemplated (see col. 14-lines 51-53).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 571-272-1430. The examiner can normally be reached on Monday to Thursday from 7:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Luz L. Alejandro
Primary Examiner
Art Unit 1763

March 7, 2005